

REMARKS

Reconsideration of this application as amended is respectfully requested.

Amendments to the Specification

Applicant has amended the specification to correct minor errors. No new matter has been added.

Amendments to the Drawing

Applicant has amended figures 6, 7, 30, 36 and 63 of the drawing to correct minor errors. No new matter has been added.

Annotated, Marked-up Drawings illustrating the amendments to figures 6, 7, 30, 36 and 63 in red ink are enclosed. Replacement Sheets for all amended figures are also enclosed.

Amendments to the Claims

As noted in the Office Action, claim number 45 was inadvertently assigned to two different claims in the originally filed application. Claims originally numbered 45 (second occurrence) to 106 have been renumbered as claims 46-107 and are referred to herein as such.

Claims 1, 23-27, 29, 31-33, 35 and 100 have been amended with the remarks below relating to such claims referring to such claims as amended. The claim amendments are fully supported by the specification or drawing. No new matter has been added. Claims 1-107 remain pending.

Objections to the Specification

The title of the invention has been objected to as not being descriptive. Applicant has amended the title and respectfully submits that the objection is overcome.

Applicant has additionally amended the specification to correct minor errors. No new matter has been added.

Objections to the Claims

Claim 35 has been objected to for depending from claim 4 instead of claim 34. Applicant has amended claim 35 to depend from claim 34.

Claim 100 has been objected to for depending from claim 98 instead of claim 99.

Applicant has amended claim 100 to depend from claim 99.

Claim Rejections – Double Patenting

Claims 1-107 have been provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-129 of copending application no. 10/062,307 (now U.S. Patent No. 6,697,276). Applicant respectfully requests reconsideration of the double-patenting rejection in view of amendments to the claims made herein, and respectfully requests that the Examiner call the undersigned attorney to discuss submission of a Terminal Disclaimer if the Examiner believes that the amended claims remain unpatentable under the judicially created doctrine of obviousness-type double patenting.

Claim Rejections – 35 U.S.C. § 102

Claims 1-9, 11-19, 23-29, 31-38, 64-71, 73-75 have been rejected under 35 U.S.C. 102 as being anticipated by U.S. Patent No. 5,526,604 to Hsu et al. (hereinafter, “Hsu”).

Applicant respectfully submits that Hsu does not anticipate claims 1-9, 11-19, 23-29, 31-38, 64-71, 73-75.

Claim 1 recites in part:

determining whether constituent bits of the search value,
including bits thereof used to generate the index, match
corresponding bits of a data value stored at a memory location
indicated by the index;

Hsu discloses a translation lookaside buffer (TLB) that calculates an address based on an index field of a virtual address, reads out a set of virtual address identifiers from respective memory sets at the calculated address, then determines whether a virtual tag field and application specific identifier (ASID) field within each virtual address identifier match a virtual tag field and ASID field within the virtual address (Hsu, col. 7, lines 4-12; and col. 7, lines 65-col. 8 line 27). Assuming arguendo that Hsu’s virtual address and virtual address identifier correspond to the search value and data value recited in applicant’s claim 1, Hsu does not disclose or suggest determining whether bits of the virtual address used to calculate the address (i.e., the index field within the virtual address) match corresponding bits within the virtual address identifier. To the contrary, Hsu discloses masking all bits in the virtual address outside the virtual tag field and ASID

field in determining whether a given virtual address identifier and virtual address match (Hsu, col. 8, lines 12-27). Applicant submits that, in view of this clear difference between Hsu and claim 1, Hsu does not anticipate claim 1. Moreover, Hsu discloses that, because the index bits of a virtual address are unique to each TLB entry, the virtual tag field of a virtual address identifier need not include the index bits (Hsu, col. 4, lines 19-25; Fig. 2a). Accordingly, as Hsu makes clear that it is unnecessary to include the index bits in the virtual address identifiers stored within the TLB, and because it is generally not desirable to store unneeded information, applicant submits that it would not have been obvious to modify Hsu to achieve the above recited feature of claim 1.

Because claims 2-9 and 11-19 depend from and further limit claim 1, applicant submits that, for at least the foregoing reasons, claims 2-9 and 11-19 also are not anticipated or rendered obvious by Hsu.

Claim 23 recites in part:

determining whether constituent bits of the search value,
including the selected bits, match corresponding bits of a data
value stored at a memory location indicated by the index;

Applicant submits that, for at least the reasons given above in reference to claim 1, Hsu does not disclose or suggest the above recited feature of Claim 23, and therefore that claim 23 is not anticipated or rendered obvious by Hsu. Because claims 24-29 depend from and further limit claim 23, applicant submits that claims 24-29 also are not anticipated or rendered obvious by Hsu.

Claim 31 recites in part:

generating an indication of whether a first portion of the search
value, including constituent bits of the search value used to
generate the index, matches a selected portion of a data value
stored at a memory location indicated by the index;

Applicant submits that, for at least the reasons given above in reference to claim 1, Hsu does not disclose or suggest the above recited feature of claim 31, and therefore that claim 31 is not anticipated or rendered obvious by Hsu. Because claims 32-38 depend from and further limit claim 31, applicant submits that claims 32-38 also are not anticipated or rendered obvious by Hsu.

As to claim 64, applicant respectfully submits that Hsu does not disclose the following recited combination:

generating a plurality of indices based on a search value;
selecting, according to a select value, one of the plurality of
indices; and
determining whether the search value matches a data value
stored at a memory location indicated by the one of the
plurality of indices.

Hsu discloses that each virtual address to be translated by the TLB includes a single 7-bit index field disposed at one of seven different offsets within the virtual address according to the page size of a currently executing process, and that a multiplexer 400 selects one of seven sets of bits within the virtual address to create an index into the TLB depending on the page size of the currently executing process (Hsu, col. 4, line 56-col. 5, line 19, referring to Figs. 3A-3G; and col. 5, line 53-col. 6, line 2, referring to Fig. 4, including multiplexer 400). Applicant submits that Hsu does not disclose or suggest generating a plurality of indices based on a search value as recited in claim 64, but rather discloses generating a single index based on a selected set of bits within a virtual address. In particular, applicant submits that the unselected sets of bits supplied to the multiplexer 400 are simply unusable groupings of bits within the incoming virtual address (i.e., bit groupings that include one or more bits from virtual address fields other than the index field as can be seen in Figs. 3A-3G and Fig. 4), and that merely providing such unusable groupings of bits to multiplexer 400 does not constitute generating a plurality of indices as recited in claim 64. Accordingly, applicant submits that Hsu does not disclose or suggest the above recited combination and therefore that claim 64 is not anticipated or rendered obvious by Hsu. Because claims 65-71 and 73-75 depend from and further limit claim 64, applicant submits that claims 65-71 and 73-75 also are not anticipated or rendered obvious by Hsu.

Claim Rejections – 35 U.S.C. § 103

Claims 10 and 30 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Hsu. Because claim 10 depends from and further limits claim 1, applicant submits that claim 10 is not obvious in view of Hsu for at least the reasons

given above in reference to claim 1. Similarly, because claim 30 depends from and further limits claim 23, applicant submits that claim 30 is not obvious in view of Hsu for at least the reasons given above in reference to claim 23.

Allowable Subject Matter

Claims 20, 21, 22 and 72 have been objected to as being dependent upon a rejected base claim, but allowable if rewritten in independent form to include all the limitations of the base claim and any intervening claims. Applicant notes the allowability of claims 20, 21, 22 and 72 if so amended, but respectfully declines to amend such claims at this time in view of the foregoing remarks with respect to base claims 1 and 64.

Applicant further notes that claims 39-63 and 76-107 are allowed.

In Conclusion

Applicant respectfully submits that all pending claims are in condition for allowance. If a telephone interview would be helpful in any way, the examiner is invited to call the undersigned attorney.

A Petition for Extension of Time is enclosed herewith.

Authorization is hereby given to charge deposit account 501914 for any fee deficiency associated with this Amendment.

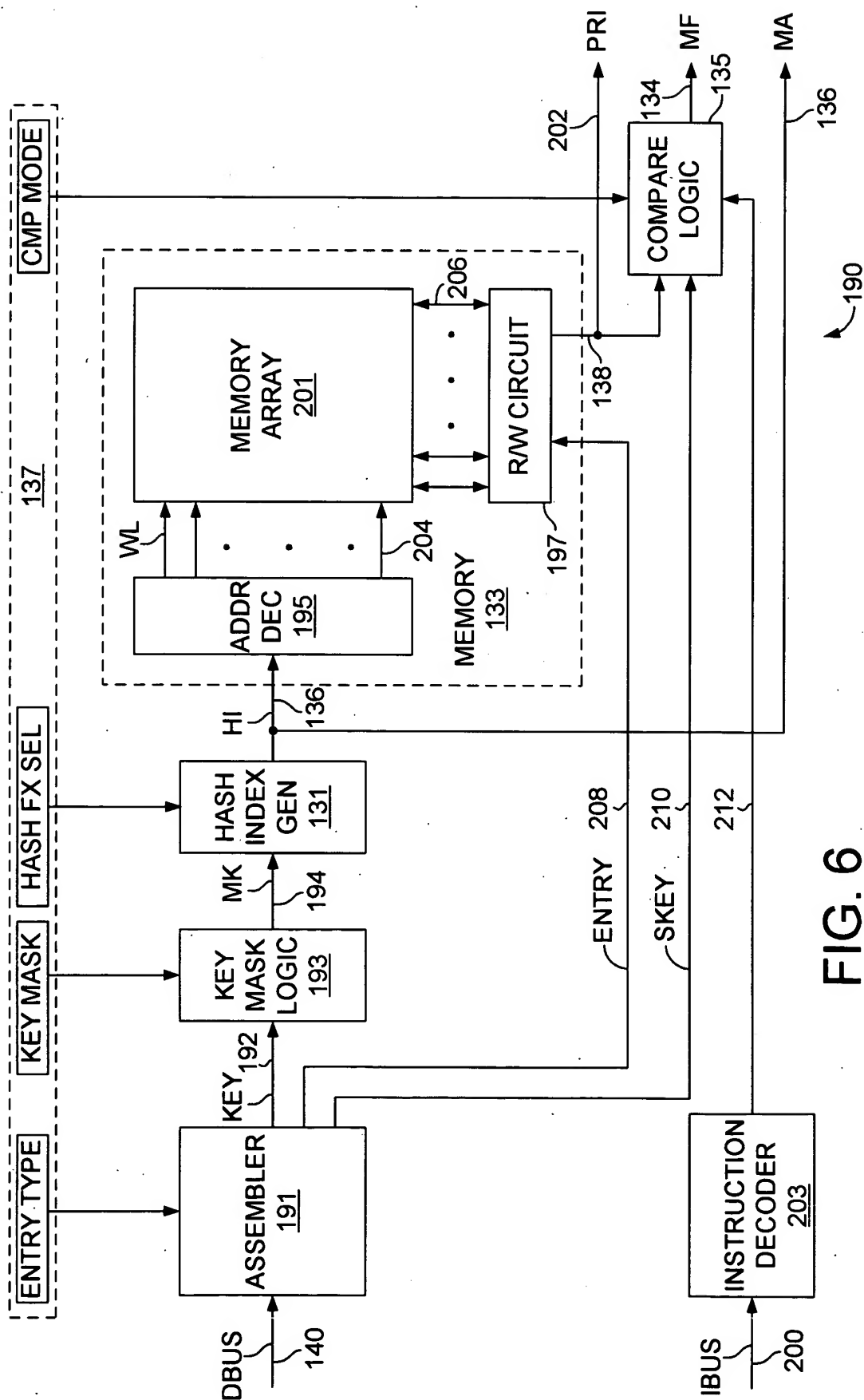
Respectfully submitted,

SHEMWELL GREGORY & COURTNEY LLP

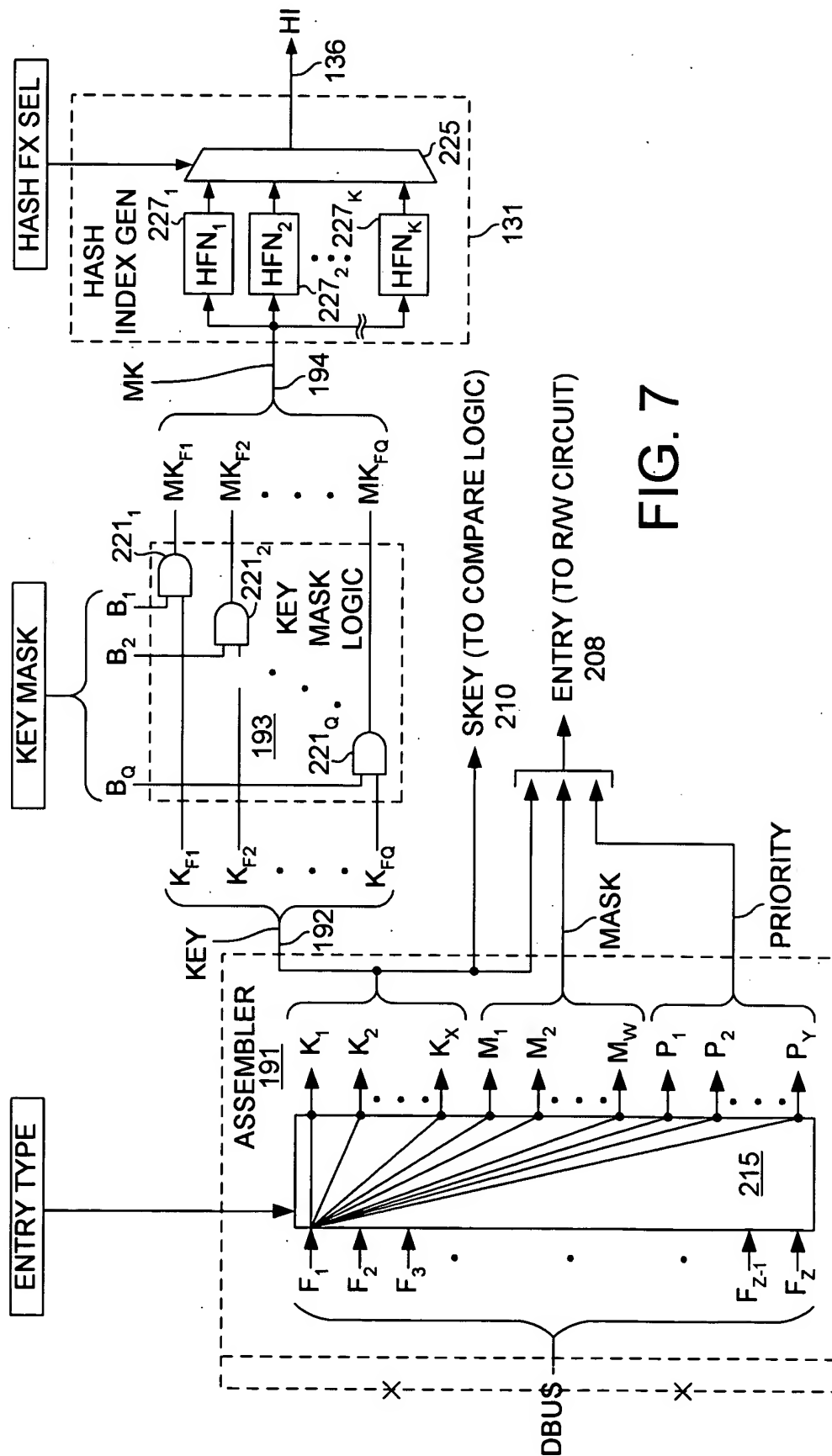


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ANNOTATED MARKED-UP DRAWINGS



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FIG. 29

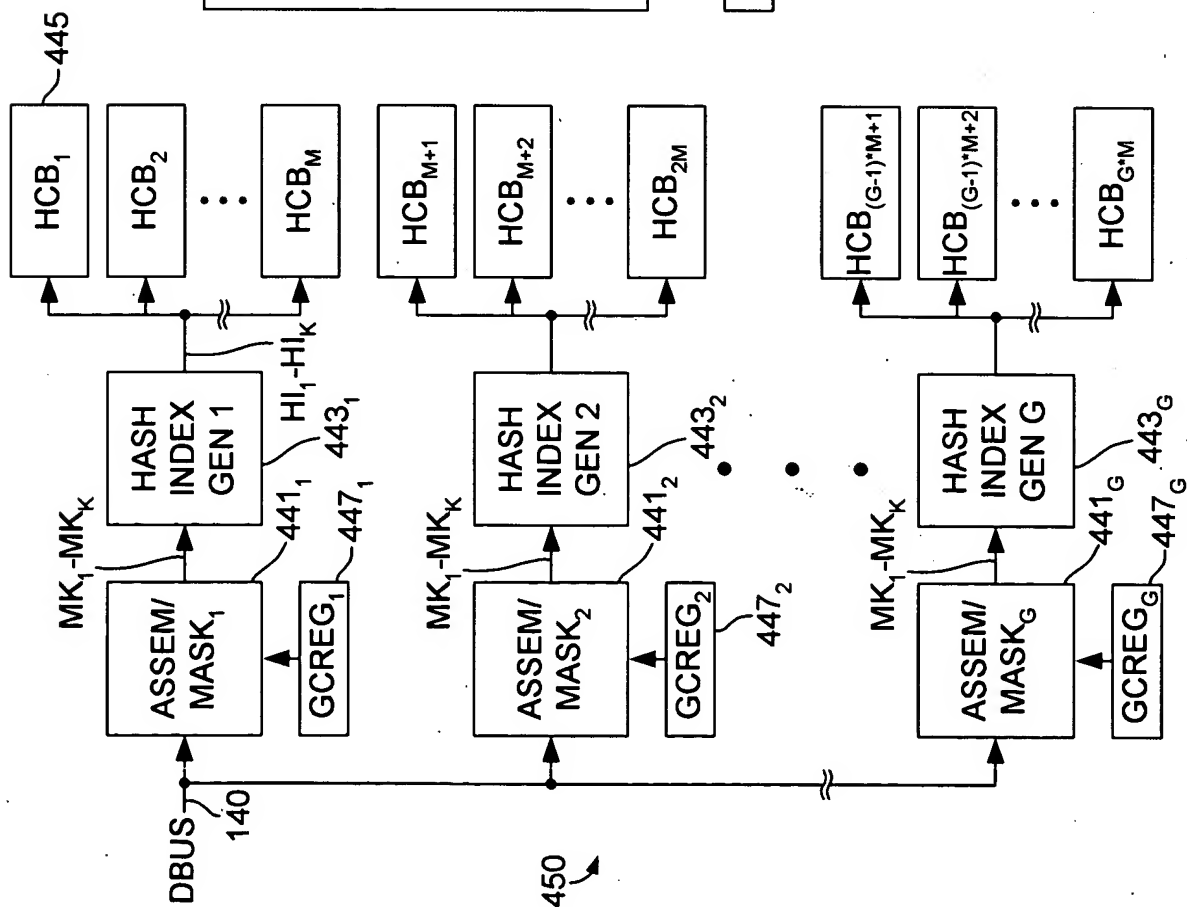
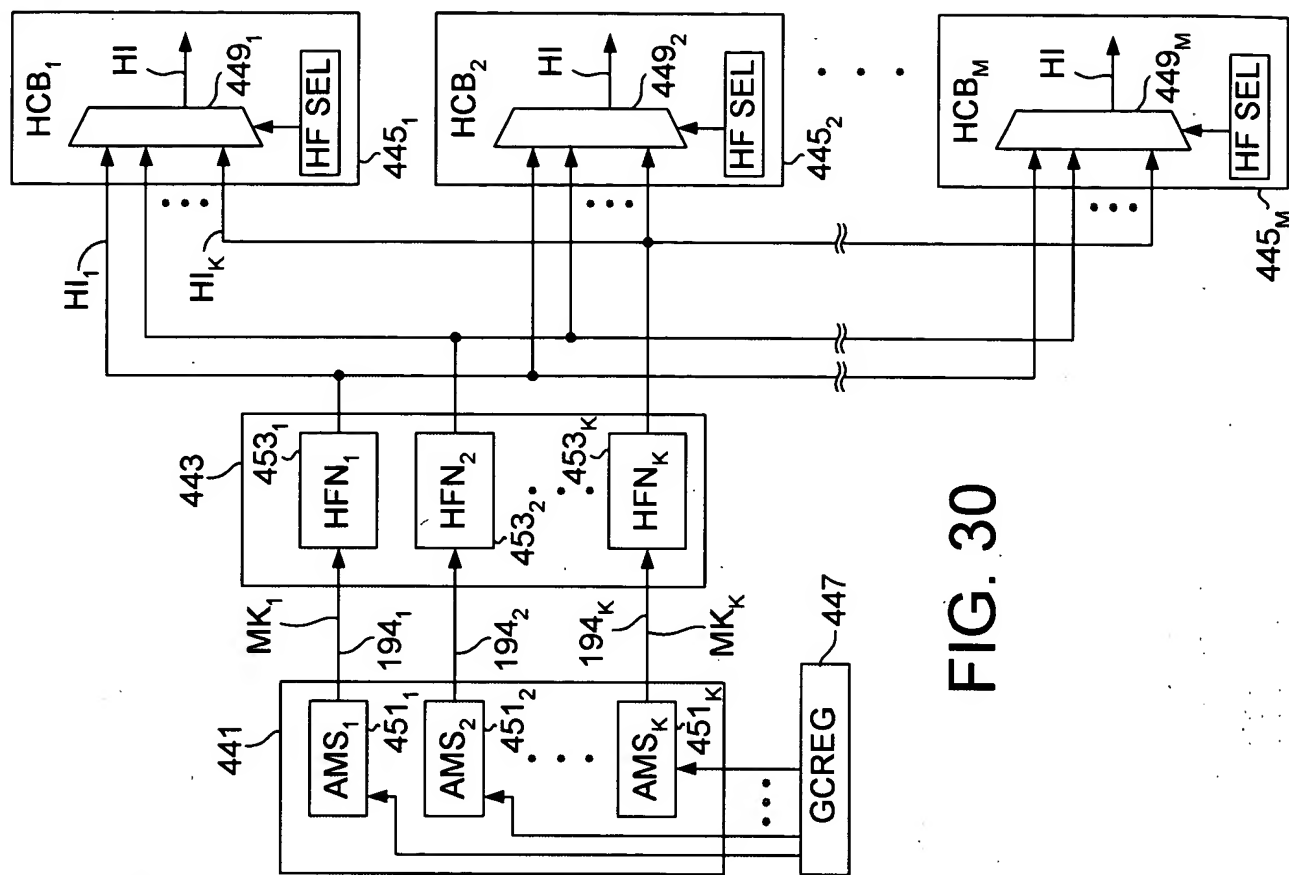


FIG. 30



ANNOTATED MARKED-UP DRAWINGS

FIG. 62

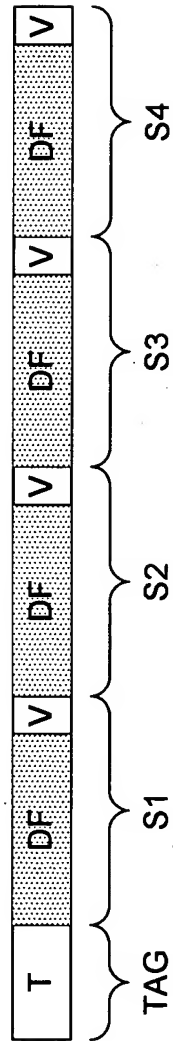


FIG. 63

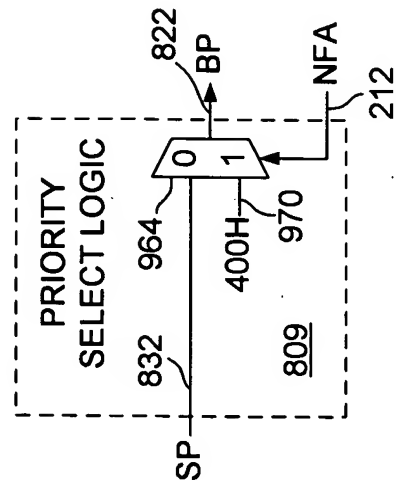


FIG. 64

